

IONIC BONDING

1: Complete the chart for each element.

Element	# of protons	# of electrons	# valence electrons	Oxidation Number (Charge)	Metal or Nonmetal?
Potassium (K)	19				
Fluorine (F)		9		1-	Nonmetal
Magnesium (Mg)			2		Metal
Iodine (I)			7		
Sodium (Na)		11		1+	
Oxygen	8			2-	
Chlorine (Cl)			7		
Calcium (Ca)		20		2+	
Aluminum (Al)	13				Metal

Part 2: For each of the following, draw the Lewis structures, arrows to show movement of electrons, the correct criss-cross diagram, and the final chemical formula.

1. Potassium + Fluorine

Lewis Structures

Criss-cross Method

Formula

K⁺

F⁻

KF

K

F

2. Magnesium + Iodine

Lewis Structures

Criss-cross Method

Formula

I

Mg

I

3. Sodium + Oxygen

Lewis Structures

Criss-cross Method

Formula



4. Sodium + Chlorine

Lewis Structures

Criss-cross Method

Formula



5. Calcium + Chlorine

Lewis Structures

Criss-cross Method

Formula

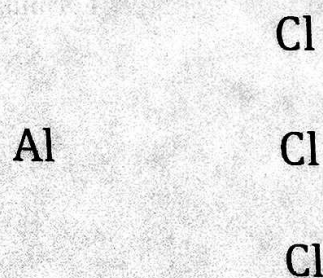


6. Aluminum + Chlorine

Lewis Structures

Criss-cross Method

Formula



Practice with Ions:

1. The charge of one proton is _____.
2. The charge of one electron is _____.
3. An atom that has 2 p⁺ and 3 e⁻ has an overall NET charge of _____.
4. An atom that has 57 p⁺ and 59 e⁻ has an overall net charge of _____.
5. An atom that has 11 p⁺ and 10 e⁻ has an overall net charge of _____.
6. An atom that has 7 p⁺ and 10 e⁻ has an overall net charge of _____.
7. Why do halogens want to form -1 ions? (Hint: think about how many valence electrons they have) _____

8. Why do alkali metals want to form 1+ ions? (Hint: think about how many valence electrons they have) _____

9. Circle the ions that are most likely to form. Put an "X" through any ions that will NOT form.

